Remarks/Arguments

Claims 1 - 27 remain pending in the application.

The Examiner rejected claims 1 - 4, 11 - 14 and 21 - 27 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,436,299 to Baarman et al., in view of U.S. Patent No. 5,144,146 to Wekhof. The Examiner rejected claims 5, 7, 15 and 17 under U.S.C. 103(a) as being unpatentable over Baarman in view of Wekhof, and further in view of U.S. Patent No. 6,317,051 to Cohen. The Examiner rejected claims 6, 8-10, 16 and 18-20 under U.S.C. 103(a) as being unpatentable over Baarman in view of Wekhof and Cohen, and further in view of general skill in the art. For the reasons set out below, Applicant respectfully traverses the rejections under 35 U.S.C. 103(a).

The present invention is directed to a fluid treatment system for small enterprise and consumer use, the system having a sensor unit for the fluid treatment system and an intelligent driver for a UV emitter of the system. As recited in each of independent claims 1, 13 and 21 the sensor unit and UV emitter are disposed within the fluid treatment zone. Applicant submits that the claims of the present application require both a UV emitter and a sensor unit inside the fluid treatment zone where the fluid flows. As will be appreciated by the Examiner, the location of the UV emitter and sensor unit within the fluid treatment zone permits more effective irradiation and direct sensing as contrasted to systems that isolate the irradiation and sensing units outside the fluid flow.

The Examiner characterized Baarman as a fluid treatment system comprising, *inter alia*, "a sensor unit disposed within the fluid treatment zone as recited in Col.2, ll 59-65." Applicant respectfully disagrees. Col. 2, lines 59-65 reads:

> the preferred embodiment, the control unit is also electrically connected with a flow sensor, an ambient temperature sensor circuit, an ambient light sensor circuit, an ultraviolet light sensor circuit, a power detection circuit, a display, an audio generation circuit, a memory storage device, a communications port and a radio frequency identification system.

Nowhere in this excerpt is the location of any of the flow sensor, temperature sensor, ambient and UV light sensors and power detection sensor said to be within the fluid treatment zone.

The Examiner further states that "if there is no indication of the contrary (i.e., that the flow sensor is disposed outside the fluid treatment zone), there is no justification for anyone of skill in the art to presume that Baarman's flow sensor would not be located within the fluid treatment zone..."

Applicant submits that there is, in fact, specific indication in Baarman that the flow sensor is disposed outside the fluid treatment zone. Baarman, at col. 1, lines 12-15, incorporates by reference its companion U.S. Application No. 09/596,416 (which issued as U.S. Patent No. 6,451,202 to Kuennen et al.). While Baarmann is directed mainly to an inductively coupled ballast, Kuennen describes, in much greater detail, the filter assembly (col. 6, line 65 to col. 9, line 5), the lamp assembly (col. 9, line 6 to col. 15, line 20), the base unit (col. 15, line 21 to col. 18, line 11), and the assembly and operation (col. 18, line 13 to col. 20, line 11) of the unit shown in exploded view in Fig. 5 of Baarman.

In particular, at col. 15, lines 50 to 63, Kuennen reads:

> Electronics assembly 66 is displayed in FIGS. 27A-F. Components of electronics assembly 66 include a lower board 648, an upper board 650, a phone jack 652, a primary coil 656, a smart sensor assembly 654, a power jack 660, a flow hall effect sensor 662, a VFD 664, a speaker 666 and a magnet sensor 668. Primary coil 656 holds 10 turns of wire. A clip 670 holds VFD 664 to upper board 650. Lower board 648 has a pair of support access boss openings 672, an outlet opening 674 in which sensor 662 is disposed, and an inlet opening 676. Support access openings 672 allow passage of bosses 610 on bottom shroud 32. Inlet and outlet openings 674 and 676 accommodate water passages entering and exiting relative to inner sleeve 50 and outlet cup assembly 56. [Emphasis added]

The electronics assembly 66 of Kuennen (shown, for example, in Fig. 27a) clearly corresponds to electronics assembly 44 of Baarman (shown in Fig. 2a) and is disposed in shroud 40 (Kuennen, Col. 6, lines 38 to 44). Outlet opening 674 is for accommodating outlet cup assembly

56 while inlet opening 676 is for accommodating inlet valve assembly 54 (Kuennen, Fig. 5 and Col. 6, lines 40 and 41). When water flows through outlet cup assembly 56, a magnetic signal is generated. The magnetic signal is then sensed by flow Hall sensor 662 disposed in outlet opening 674 as shown in Fig. 27F of Kuennen. Flow Hall sensor 662 is clearly not within the fluid treatment zone of the water treatment system. Thus, Applicant submits that Baarman, read in conjunction with Kuennen, clearly describes a flow sensor located outside the fluid treatment zone.

Baarman discloses a UV emitter and a sensor unit that are both remote from the fluid treatment zone. As described at col. 15, line 64 to col. 16, line 2 and as shown in Fig. 2B, the fluid treatment zone is defined by a pair of quartz tubes 58 where the water flows and is irradiated by the ultraviolet lamp 60, which is clearly located outside the quartz tubes. With respect to sensors, there is nothing in Baarman to suggest that the electronics assembly 44, which is assumed to contain the necessary sensors, is located within the fluid treatment zone. In fact, when Baarman is read in light of Kuennen, the location of the flow sensor is clearly described as being outside the water treatment zone and in outlet opening 674 as stated above.

Regarding Wekhof, the Examiner cited Wekhof as disclosing a UV light source within a fluid chamber. Wekhof teaches a method and an apparatus for destruction of toxic compounds through direct ultraviolet irradiation, the apparatus comprising a water flow chamber within which is disposed a pulsed UV light source such as a xenon flash lamp (col. 4, lines 50-54). Wekhof's disclosure is directed to a municipal waste water purification system (column 2, lines 48-50), not to a small enterprise or consumer use system.

Applicant reiterates that no one of skill in the art would be motivated to combine the countertop water purification system of Baarman with the municipal sewage treatment system of Wekhof, and, that when combined, such a combination does not lead to the present invention since Baarman teaches neither a UV light source disposed within a fluid chamber nor a sensor disposed within the fluid chamber. Combining Wekhof and Baarman would lead to a water treatment apparatus still without a sensor in the fluid chamber.

Applicant also reiterates that the pulsed UV-lamp disclosed in Wekhof also makes the combination of Baarman and Wekhof improper. Pulsed UV systems have been known for a

considerable time; however, there are still no commercially available units for consumer or small enterprise use. High voltages, high current densities and rapid current rises (Wekhof columns 4 and 5) required in pulsed UV systems are expensive to implement safely, pushing the cost out of reach of the consumer and small enterprise users. Moreover, pulsed UV-lamps are generally positive pressure lamps, which means that they require special and expensive transparent envelops, sometimes made of sapphire, to reduce the risk of lamp explosion. Thus, no one of skill in the art would, having regard to the home purifier of Baarman, be motivated to combine it with the pulsed UV system of Wekhof.

In summary, Applicant submits neither Baarman nor Wekhof describe or suggest disposing a sensor unit within a fluid treatment zone as recited in independent claims 1, 13 and 21. Applicant further submits that one of skill in the art would not be motivated to combine Baarman and Wekhof, nor would such a combination lead to the invention claimed in claims 1-4, 11-14 and 21-27. Withdrawal of the rejections under 35 U.S.C. 103(a) to claims 1, 13 and 21, and their dependent claims 2 - 4, 11, 12, 14 and 22-27, is therefore, requested.

The Examiner cited Cohen as disclosing a sound/vibration detector connected to a control system. Cohen discloses a microphone for detecting leaks in high pressure water pipes. When a leak is detected, the system can take appropriate action to stop the water flow. Applicant first submits that Cohen is not within the art of water treatment systems, and is, therefore, not a proper reference to combine with Baarman and Wekhof. Applicant reiterates the comments above and further notes that there is no teaching, suggestion or demonstrated incentive or motivation in either reference supporting the combination of a system for UV water treatment with leak detection in high pressure municipal water delivery systems.

Applicant further reiterates that Cohen does not disclose a sound/vibration sensor disposed within a fluid treatment zone. As shown in Figs. 1 and 2, the sound/vibration sensors taught by Cohen are mounted to the exterior of the water pipe. Nothing in Cohen teaches or suggests mounting a sound/vibration sensor inside the pipes.

In summary, for the reasons given above with respect to Baarman, Wekhof and Cohen, Applicant submits that no one of skill in the art would be motivated to combine the references to arrive at the claimed apparatus of claims 5, 7, 15 and 17, and that such a combination would not

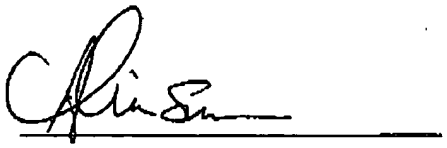
result in the claimed apparatus. Therefore, withdrawal of the rejections under 35 U.S.C. 103(a) of claims 5, 7, 15 and 17 is requested.

Similarly, for the reasons given above, Applicant submits that there is no motivation to combine the references of Barman, Wekhof, and Cohen with general skill in the art, and that such a combination would not lead one of ordinary skill in the art to the invention claimed in claims 6, 8-10, 16 and 18-20. Therefore, withdrawal of the rejections under 35 U.S.C. 103(a) of claims 6, 8-10, 16 and 18-20 is requested.

No fee is believed due for this submission. However, Applicant authorizes the Commissioner to debit any required fee from Deposit Account No. 501593. The Commissioner is further authorized to debit any additional amount required, and to credit any overpayment to the above-noted deposit account.

It is submitted that this application is now in condition for allowance, and action to that end is respectfully requested.

Respectfully submitted,
SCHAIBLE, Uwe D. et al.



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